The Interestingness of Images

Michael Gygli
ETH Zurich, upicto GmbH
gygli@vision.ee.ethz.ch

Helmut Grabner
ETH Zurich, upicto GmbH
grabner@vision.ee.ethz.ch

Hayko Riemschneider
ETH Zurich
hayko@vision.ee.ethz.ch

Fabian Nater
upicto GmbH
nater@upicto.com

Luc Van Gool
ETH Zurich, KU Leuven
vangool@vision.ee.ethz.ch

Problem statement
• What makes an image interesting?
• Can we build a model to predict it?

Summary
• We investigate human interest in photos
• Based on psychological experiments
• We identify cues for interestingness
• Ranking images by interestingness is better
  than by other cues (e.g. memorability)
• Consistency across individuals is high
• Interestingness – what people believe they
  will remember
• Memorability has no positive correlation
• We build an interestingness predictor based on a
  set of features
• Performance is demonstrated on 3 datasets of varying context

Applications
• Image retrieval / classification
• Marketing
• Video retrieval / summarization

Computational model

Features
1) Unusualness
   • Global outliers
   • Composition of parts

2) Aesthetics
   • Colorfulness
   • Arousal
   • Complexity
   • Contrast
   • Edge distribution

3) General preferences
   • SVM on GIST
   • SVM on Spatial pyramid
   • SVM on color histograms

Final interestingness
• Whitening
• Linear model
• Feed-forward feature selection

What is human interest?

Literature
Berlyne [1] (1960): Interest is influenced by:
• Novelty
• Conflict
• Complexity

on perceptual pleasure. Interesting when:
• Novel
• Comprehensible
• Natural rather than man-made

Our experiments
Using our data and [3,4] we found:
• High consistency across individuals (p=0.63)
• 3 main causes of interest:
  • Unusualness
  • Aesthetics
  • General preferences
• Scene types

Also important are:
• Famousness
• Making happy

Actual memorability and interestingness
are negatively correlated.

Results

Context

Webcams

Predicted high interestingness

8 Scene categories

Barely

Predicted low interestingness

Arbitrary images

References
(4) A. Oliva, A. Torralba. Modeling the shape of the scene: A holistic representation of the spatial envelope. IVC (2001)

Data
This work was supported by the European Research Council (ERC) under the project VarCity (427394) and the Swiss CTI under project #15768.1

Webcamaze
• Showcase application
• Detects interesting events in webcam images
• Available for Android

http://www.webcamaze.com/